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Deep Space Network/Flight Project Interface Design Handbook

http://deepspace1.jpl.nasa.gov/810-5/

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Foreword

This modular handbook is provided for use by all NASA-approved flight projects. It is a standard source of technical design information for Deep Space Network (DSN) interfaces with flight projects in the areas of telecommunications, data processing, and simulation.

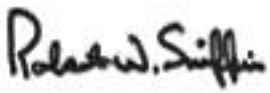
The information will permit flight projects to make an early start in designing hardware and software, with assurance that the resulting project interfaces will be compatible with the DSN configuration when required for mission support. Specific DSN commitments to support individual flight projects are negotiated and documented separately in the appropriate Mission Requirements Request (MRR) and supporting documents.

For matters of interpretation or questions concerning this handbook, contact the DSN Data Services Office, Organization 940, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, California, 91109.

INT-10, Rev. C
Handbook Introduction

December 1, 1996

Prepared by:



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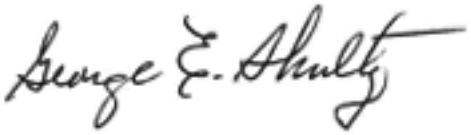

G. E. Shultz
DSN Document Release

1. Introduction

1.1 Purpose

This two-volume modular handbook has been approved by the DSN Data Services Office and is published as a source of interface design data for all flight projects using the DSN. It provides information useful to flight projects contemplating the design of hardware and software, with reasonable assurance that the resulting project interfaces will be compatible with the established or planned Deep Space Network (DSN) configurations.

1.2 Scope

Volume I consists of document modules that present existing technical design information applicable to the current time span. Volume II consists of "proposed capability" modules that present technical design information applicable to future time periods. As the proposed capabilities of each Volume II module become approved by the DSN Data Services Office, a revised Volume I module will be published to reflect the new existing capabilities.

2. General Information

2.1 Constraints

The disclosure of a capability by this handbook does not assure that it can be made available to all potential DSN users. Specific support commitments must be negotiated between individual flight projects and the DSN Data Services Office. Furthermore, this handbook does not relieve projects of the responsibility for obtaining frequency spectrum support for their equipment designs. This spectrum support is obtained through the JPL Frequency Manager, who is resident in the DSN Data Services Office.

In seeking viable solutions to telecommunications or data processing problems, flight projects are not necessarily constrained by the effective design parameters contained in Volume I or the proposed capabilities of Volume II. Flight project requirements which could result in DSN interface design beyond that implied by Volume I, however, will be subject to negotiation with the DSN Data Services Office.

2.2 Types of Data

All DSN design information presented in the Volume I handbook is divided into two classes:

Class 1: Data that are verified by measurement and, therefore, represent actual performance. These data are designated Class 1 and are unmarked in the text.

Class 2: DSN design performance data which have not been verified by measurement. These data are designated Class 2 and are identified by a superscript 2.

As hardware and software are tested and evaluated under operational conditions throughout the DSN, performance parameters will be refined and upgraded to Class l status. Revised parameters will be included in the next revision of the appropriate module.

Most design information presented in Volume II falls in the Class 2 category, but is unmarked. Where it is desired to emphasize that a Class 1 data item will be unchanged from its existing value, the item is identified by a superscript 1.

2.3 Module Revision and Control

The individual modules of either Volume I or Volume II of the initial issue and any revisions should be submitted with a written request for approval to the responsible System

Engineer, Office 940. The modules contained in these volumes are approved for publication under the authority of the cover page signatories. Revisions are indicated by a revision letter following the module designator. Minor corrections or changes may be issued in the form of change pages which will be appropriately marked and recorded in a Change Log at the front of the module.

2.4 Abbreviations

It should be recognized that certain common abbreviations or acronyms used in either volume of this handbook may not be identified on first usage. In this event, refer to Standard Practice Document 810-3, Glossary of DSN Abbreviations and Acronyms, for a cross-reference to the appropriate term.

2.5 Applicable Documents

The latest issues of the following documents are directly applicable to and/or furnish source requirements of this handbook:

(1) DSN Standard Practice - Deep Space Network Documentation; JPL Document 810-1

(2) DSN Standard Practice - Glossary of DSN Abbreviations and Acronyms; JPL Document 810-3

(3) DSN Requirements - Detailed Interface Design; JPL Document 820-13

(4) DSN General Requirements and Plans - General System Requirements; JPL Document 820-20

(5) DSN System Requirements; JPL Document 821 series

(6) Network Operations Control Center Subsystem Requirements; JPL Document 822 series

(7) Ground Communications Facility Subsystem Requirements; JPL Document 823 series

(8) Deep Space Station Subsystem Requirements; JPL Document 824 series